

## Questions and Answers About WWC Standards for Reviewing Fuzzy Regression Discontinuity Designs (FRDDs)

The purpose of this document is to provide answers to the questions submitted before and during the What Works Clearinghouse (WWC) technical assistance webinar, “WWC Standards for Reviewing Fuzzy Regression Discontinuity Designs (FRDDs),” hosted on October 29, 2019.

This document is meant to serve as a companion to the webinar slide and webinar recording, which can be found [here on the WWC website](#). Whenever possible, we identified the slide(s) to which a question pertains. We combined similar questions and rephrased others for clarity, preserving the meaning of the original question. If additional questions arise, please contact the WWC Help Desk at <https://ies.ed.gov/ncee/wwc/help>.

### QUESTIONS & ANSWERS

#### 1. What resources does the WWC offer to evaluate FRDDs?

The WWC’s main resource for evaluating FRDDs is Section III of the *WWC Standards Handbook, Version 4.0*, which is covered on pages 68 through 71 of the Handbook. The WWC also has a “Reporting Guide for Study Authors” on regression discontinuity designs (RDDs; linked in the General Resources section at the end of this document), which provides guidance to study authors on the types of information they should report for both sharp and fuzzy RDD studies.

#### 2. Are future updates planned for the WWC’s FRDD standards?

The upcoming *WWC Standards Handbook, Version 4.1* and *Procedures Handbook, Version 4.1*, provide additional guidance for reviewers on methods for estimating impact estimates from RDDs, whether sharp or fuzzy. Otherwise no immediate planned updates are planned for the WWC’s FRDD standards.

#### 3. The *WWC Standards Handbook* indicates that all RDDs must “completely satisfy” the FRDD standard to receive a rating of Meets WWC Standards Without Reservations.” Is that true for sharp RDD studies? Do the FRDD criteria still apply in that case?

The FRDD standard (namely, RDD standard 5) is waived for sharp RDDs and is also waived for FRDDs that use a reduced-form model. So, sharp RDD studies do not need to “completely satisfy” these FRDD criteria to receive a rating of “Meets WWC RDD Standards Without Reservations.” As demonstrated in the webinar (slide 20), the FRDD criteria will not be applicable to sharp RDD studies; thus, sharp RDD studies do not need to completely satisfy the FRDD standard to receive the “Meets WWC RDD Standards Without Reservations” disposition.

#### **4. Do FRDDs have different attrition requirements than sharp RDDs to meet WWC standards? (For example, do FRDDs have more or less strict attrition boundaries for noncompliers?)**

Fuzzy RDDs do not have more or less strict attrition boundaries than sharp RDDs. The WWC's attrition boundaries are the same for both sharp and FRDDs. For all RDDs—whether sharp or fuzzy—the samples used to calculate attrition must include all subjects who were eligible to be assigned to the intervention or comparison group using the forcing variable, not only a subset of those subjects known to the researcher. Namely, attrition cannot be assessed unless (1) all subjects who were eligible to be assigned to conditions are known and (2) for all these subjects, their assigned condition must be known.

#### **5. Please clarify how FRDDs are rated by the WWC for studies with aggregated impacts.**

Page 74 in Section III of the *WWC Standards Handbook, Version 4.0* discusses how FRDDs are rated by the WWC for studies with aggregated impacts. Namely, in the case of an aggregate impact, the FRDD standard (standard 5) must be applied to every impact included in the aggregate. Any impacts excluded from the aggregate will be treated as attrition, with two exceptions: impacts may be excluded if they do not meet criterion E or F. The aggregate impact analysis receives the lowest rating among all impacts.

#### **6. Can you provide more information about acceptable ways to satisfy criteria G and H (the criteria related to estimating impacts) for the FRDD standard?**

As described on page 71 in Section III of the *WWC Standards Handbook, Version 4.0*, for a study to satisfy criterion G of RDD standard 5, the study must use a local regression or related nonparametric approach in which FRDD impacts are estimated within a justified bandwidth. What constitutes a justified bandwidth is described in RDD standard 4, criterion B (pages 66 and 67) and near the bottom of page 69 in the general description of RDD standard 5.

It is acceptable for study authors to use separate bandwidths for the numerator and denominator, if both are selected using a justified approach. It is also acceptable for authors to use the bandwidth selected for the numerator if that bandwidth is smaller than (or equal to) a justified bandwidth selected for the denominator.

For a study to satisfy criterion H of RDD standard 5, the FRDD impact can be estimated using a bandwidth that is justified only for the numerator (even if it is larger than a bandwidth justified for the denominator). This criterion can also be satisfied if the denominator is estimated using a “best fit” functional form shown to be a better fit to the data than at least two other functional forms.

#### **7. Are there additional baseline equivalence requirements to meet WWC FRDD standards?**

Pages 63 and 64 in Section III of the *WWC Standards Handbook, Version 4.0* describes the baseline equivalence requirements for RDD studies to meet WWC evidence standards (RDD

standard 3, criterion A). In short, for RDD studies (fuzzy or sharp), baseline equivalence on key covariates (as identified in the review protocol) must be established at the cutoff value of the forcing variable. When estimating the baseline equivalence impacts at the cutoff, the study must either (1) use exactly the same bandwidth and/or functional form as was used to estimate the impact on the outcome or (2) use the same algorithm for selecting the bandwidth and/or functional form as was used to estimate the impact on the outcome.

## 8. How does the WWC calculate treatment effect?

The upcoming release of the *WWC Standards Handbook, Version 4.1* and the *Procedures Handbook, Version 4.1* provides additional guidance for reviewers on methods for estimating impact estimates from RDDs (for both sharp and FRDDs).

## General Resources

In addition to the webinar and Questions and Answers document, the following resources provide guidance about the WWC's standards and procedures for reviewing evidence from RDD studies. These include resources shared in the chat box during the webinar.

- *WWC Procedures and Standards Handbook, Version 4.1*: [LINK](#).
- *WWC Standards Handbook, Version 4.0*:  
[https://ies.ed.gov/ncee/wwc/Docs/referenceresources/wwc\\_standards\\_handbook\\_v4.pdf](https://ies.ed.gov/ncee/wwc/Docs/referenceresources/wwc_standards_handbook_v4.pdf)
- *WWC Procedures Handbook, Version 4.0*:  
[https://ies.ed.gov/ncee/wwc/Docs/referenceresources/wwc\\_procedures\\_handbook\\_v4.pdf](https://ies.ed.gov/ncee/wwc/Docs/referenceresources/wwc_procedures_handbook_v4.pdf)
- WWC Reporting Guide for Authors of Regression Discontinuity Design Studies:  
[https://ies.ed.gov/ncee/wwc/Docs/ReferenceResources/wwc\\_rdd\\_guide\\_022218.pdf](https://ies.ed.gov/ncee/wwc/Docs/ReferenceResources/wwc_rdd_guide_022218.pdf)
- WWC Intervention Reports: <https://ies.ed.gov/ncee/wwc/Publication#/ContentTypeId:1>
- WWC database of reviewed studies: <https://ies.ed.gov/ncee/wwc>
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